TRANSCRIPT OF PROCEEDINGS

NASA/JPL CERCLA RPM MEETING

Tuesday, January 27, 2004

Charles W. Eliot Middle School

2184 North Lake Avenue

Altadena, CA 91001

7:38 p.m. - 9:38 p.m.

I N D E X

ATTENDEES	AFFILIATION
MERRILEE FELLOWS	NASA
STEVE SLATEN	NASA
ROBERT HAYWARD	LINCOLN AVENUE WATER COMPANY
DAVID AMIDEI	NASA
KEITH FIELDS	BATTELLE
KIMBERLY GATES	NFESC
DAVID CLEXTON	BATTELLE
MARK RIPPERDA	USEPA
MOHAMMED ZAIDI	LA RWQCB
KIMBERLY GATES	US NAVY
ROBERT HAYWARD	LINCOLN AVENUE WATER COMPANY
MICHAEL ISKAROUS	DTSC
VERA MELNYK-VECCHIO	CA DHS
FRED GREGORY	

I N D E X

ATTENDEES

RON L. WOODFORD

ANDREW P. PAJAK

JOHN LOPEZ

LUCY HINO

ELIZABETH F. FRANCIS

PAULINE JIMENEZ

JICK J. CHEN

RUTH BRYANT

S. FORD

BENJAMIN MYERS

ARTHUR FITTEN

MARY FITTEN

PAUL DOOBINSON

MARQUIETTA COVINGTON

NATHANIEL NOLEN

LORRAINE TONEY

WANDA JAMES

TONY ZAMPIELLO

R. STEWARD

JOHN M. COX

CHRIS MORSS

MARY JAMES

I N D E X

ATTENDEES

L. B. MAJUPSON

CATHY STITES

PEREHY ANDERSON

CHRIS COLEGATE

CHERYL DORSEY

JESSE SANDERS

DOROTHY V. ALBRIGHT

DOROTHY THORMAN

JORGE HERNANDEZ

JOAN HOOKS

SANDRA ANDERSON

ROBERT LACKEY

JIM MORSE

RON CARTER

MARK COLINS

JOE DIMASSA

JOHN MARSTON

JACK HARMS

MIKE COTTER

BARBARA BENTON

DON BREMNER

R. FIEDLER

I N D E X

ATTENDEES

D. LAVONNE
TOM PERSON
ADAM BELL
MELODY SCHMIDT, M.D.
MELODY COMFORT
ROSETTA BROWN
BILL GUARINI
FRANK M. ORTELLITI
HEATHER COLLINS
JOHN SCHUMACHER
MAVIS MANUEL
BOB HOWD
JON ROHRER
ROBERT MACKIN
TRAVIS PERRY
JOHN WILSON
TAMMY WILSON
TIM PARISI
PHIL LA MORI
KIM LUNDY
SHERRY AUCH
MONIQUE WALDEN
ASIA SMITH

I N D E X

ATTENDEES

JOHN CLAIRDAY
BRAD BOAMN
NADINE HEGAMIN
GERALDINE T. LACKEY
BONNIE HEDRICK
JOHN HEDRICK
WENDY VAN DE WATER
ROBERT STEINBOCKEN
JOHN ACCARD
MARK LOSI
GORDON STEWART
MARGO YOUNG
LARRY DAVIDSON
NORM LEWIS
MICHAEL DICKENS
JANET FAHEY
LARRY DUNCAN
ARLINE PAGE
ERIC SUNADA
DONALD G. ROGERS
JARI FAULKNER
TIM BRICK
INNA BAGGITT

I N D E X

ATTENDEES
WILLIAM I. JOHNSON
VIOLA WILLIAMS
GARY SCOTT (STRUCK OUT)
DAVID HAXTON
TAMARA NICHOLS
GARY TAKARA
MARIETTA KRUELLS
DEBORAH GHAMLOUCH

Altadena, California, Tuesday, January 27, 2004

7:38 P.M.

MS. FELLOWS: Welcome to the meeting on JPL groundwater cleanup. I'm Merrilee Fellows. I'm the manager of outreach for the JPL groundwater cleanup. And I'm also going to facilitate the meeting tonight.

First thing I want to do, though, is make a brief announcement about Spanish translation, and I'll introduce Celina Pagini Tousigant.

THE INTERPRETER: Thank you, Merrilee.

Good evening. My name is Celina Pagini Tousigant. My role will be to provide translation to the presentation tonight for people that speak Spanish.

I'm going to ask the people in the audience that need a translation.

(Spanish translation by the Interpreter.)

MS. FELLOWS: The purpose tonight is a twofold purpose. First, we're going to explain what we've been doing recently in groundwater cleanup and what our plans are for the near future. But equally important, and for me more important, is to hear what your comments and concerns are.

I'm going to make some brief housekeeping remarks like these, and then we're going to have a couple of

welcoming remarks, a few technical -- short technical presentations, and then we'll spend the rest of the evening hearing your questions and comments.

And we haven't spoken with you in a while. We realize that. And we want to get in a routine of doing so. We're hoping to hold at least quarterly meetings, more often if you want them, and maybe intersperse quarterly meetings with newsletters or meetings with small groups, whatever you ask us to do. Our hope is that we keep doing so much that you finally say, "Stop. Stop. No more." But the main idea is to make sure that you know we're available to you.

You notice that we have a court reporter here, and that is also for two reasons: One is to make sure we track every one of your comments that you make tonight so we make sure we've responded. The other thing is to track any promises or commitments we make to you tonight. I'll try to capture those -- if they're specific things, I've captured them on the white board ourselves, but also we'll look at the transcripts later and make sure we caught every one of your concerns.

I want to also mention that we have a website. It's the administrative record. That's all the official documents that we've scanned into the system. And that's in English, and it's available at http colon slash slash

JPL water dot NASA dot gov.

We also have the brochures that were available out front and were mailed to a number of you. And those are available. We can also mail more out or have them available at the water purveyors' offices.

We've got comment cards available, and there's two things you can do with those. One is if you would rather have us read a question out loud instead of you asking it out loud, just write it down and hand it to one of our staff that will be walking up and down the sides. Or if you'd rather just write a comment and have us answer it later -- maybe it's one that takes a little more research for us -- then we'll follow up and make sure we answer it and send it to you.

It's addressed to me so if you leave your address on the other side, I can make sure that I can get it back to you.

We really want to encourage your questions tonight. We also want to encourage your sign-in. I know a lot of you signed in when you came in. That's very important for us because it's not just meeting -- this meeting. This is just the first of many we want to follow with. We want to make sure we can find you and let you know of the other ones. If we're missing your friends or your neighbors, let us know that too, and we'll try to

follow up.

For the ground rules tonight, I would like to ask you to limit it at first to one question and maybe a follow-up. And if you have a comment instead of a question, try to keep it to something like two minutes. And then, if we work through the room and there's still time at the end, we'll start over with the people that have more follow-ups.

Now, a measure of the importance with which NASA takes this entire effort is that the No. 2 person at NASA, the deputy administrator, Mr. Fred Gregory, has offered to be here with us tonight.

Mr. Gregory is a former astronaut. He was the first African-American commander of the Space Shuttle. He was recently inducted into the Astronaut Hall of Fame.

Please join me in welcoming Mr. Gregory.

MR. GREGORY: Thanks, Merrilee, for that very kind introduction.

I got on a plane today -- most of it's going to be really technical stuff we're going to talk about, but I got to tell you about the DC weather today.

I got on a plane today in 22-degree weather, snow and freezing rain. And it took us an hour to -- it didn't take me; I sat in the plane -- but it took an hour for them to de-ice this thing so that we could take off. And I

landed here, and people were bemoaning the fact that it was 59 degrees.

Now, see, you got to work with me on this. Fifty-nine degrees is like Jamaica. Because in DC, I think for the last -- oh, I think three weeks, it hasn't been above 25 degrees. And so when the snow came -- I mean, actually, there's a bad part and a good part. The bad part is the snow is there. The good part is that it didn't melt and then refreeze so there's no ice beneath the snow and the dirt, but the dirt is frozen.

And it's -- this is wonderful. Oh, you all are so lucky to live out here, and I'll tell you how lucky you are. I've actually been out here three times in the last two weeks. The last time I was here was Friday and left on Saturday to go back. And I had been here on the -- on the 14th, when the vice president was here. And I mention that because all of those have been associated with the successes of folks who live in this community. And by "this community," I mean the neighborhood around the Jet Propulsion Lab.

Jet Propulsion Lab has a series of successes, second to no one else in the entire world. There is no doubt that the work that you, as neighbors and perhaps scientists or engineers who work at JPL, but then just neighbors of those who work out there, have accomplished

something that has never ever been demonstrated before, starting with the Casidi (phonetic) and the launch, and then we have -- just at the beginning of this year, we had the Stardust and a satellite that's actually gone into the plume of an asteroid.

And, you know, the only people who have successfully put things on Mars are the United States. And there have only been, I believe, four successes in landing on Mars and actually transmitting something. Two of them were called the Viking in the '60s, but to have this -- this double bang at the beginning of January with Spirit and then Saturday night, Opportunity, all out of this Jet Propulsion Lab, you all have got to be mighty, mighty proud of your -- where you live and how warm it is, and, obviously, how that heat helps you do these really smart things.

I had another kind of a less publicized visit and that was in July. And I came out here because I heard about this guy, Bob Hayward, and I came out here for the sole purpose of meeting Bob.

And I had the privilege -- he was in -- to be able to go to the water authority, the Lincoln Avenue water authority, and spend maybe an hour and a half. And words to the effect, you know, when we -- when I walked in were something like "Can't we all just get along?" And I knew

at that point that perhaps what we had been doing in the past as far as communication was concerned had failed miserably.

And so in that time that I spent with Bob, I made a commitment to him that we -- we just shook on it. And in my family, if you do that, that's all it takes. We can have a lot of written things. But I told Bob that we were going to do a couple of things. One is that -- and I admitted that our communication in the past had been, obviously, lousy and that we were going to work on that.

I guess there were three things. Another thing was that I was going to put a staff in place that not only could communicate, live in the community, spoke the same language that each of you do, but also put into place a very strong technical staff. And with Steve from the technical side and Merrilee from the communication, and Myrna Guiterrez here, I think that we have made an initial good step, at least from my point of view.

Of course, the real proof of the pudding is going to be you: How are we doing? And that's the reason why we are calling these meetings. And we're going to have as many -- these meetings are not required at all. There is no reason for us to do anything like this. But, from my point of view, when I talked to Bob in July, it was very clear that these are the things that we needed to do.

And I know that Merrilee, when she got up here, she said, have you -- you know, "I want you to sign in," but the other portion which she said was "And tell your neighbors or invite your neighbors to participate in this." Because if what we're talking about is a failure to communicate, you betcha, we're going to fix it.

And the second thing is -- and this is the second of the -- I went off on three there -- but the second is that we begin to do things, and things that you can see and say, "Yes. I see that progress is being made."

And I guess the third thing here -- another one of these one, two, three -- is that you consider us at the Jet Propulsion Lab good neighbors because that's what this is all about.

We want clean water. We want a healthy environment. We want an excellent quality of life. Because that's the thing that allows our folks to make these outstanding -- have these outstanding accomplishments, as we've just seen, with the very successful Spirit and Opportunity landings.

And maybe some of you are a part of the Spirit as it, I guess, overloaded its database or its memory, and we're now pulling that thing back up. I just love it when that happens.

Look, this is an open session. We've got some

rocket scientists in here. We've got smart people in here. As far as I can tell, they are totally -- all of them are totally unbiased. NASA didn't bring these people in. These are California EPA folks. These are folks who can answer the questions that you might have. And this is your opportunity this evening to begin the dialogue that will eventually lead to the ultimate cleanup and a recognition that this is a great America that we live in and we have got to be great neighbors to make it progress.

So thank you very much. Bob, thank you for inviting me, although I don't even know if you knew that I was going to come. I just kind of showed up. But I appreciate it.

MR. HAYWARD: Thank you.

MS. FELLOWS: Thank you.

Mr. Gregory did bring up an important point, that it's not only us -- Steve Slaten who is our remedial project manager and myself -- but we also have a number of federal and state regulators here, all of whom are also available to answer questions. And we'll introduce them and talk about them in a minute.

But, first, also very importantly, I would like to introduce the general manager of the Lincoln Avenue Water Company. That's Robert Hayward.

MR. HAYWARD: Thank you, Merrilee.

I really don't have a lot to say. Most of you know me. I have been at the Water Company for a number of years. I just want to say, just as to a follow-up to what Mr. Gregory just said. And he said, "My name is Fred. Call me Fred."

So when Fred and I first met -- and we met, we talked, and we connected. And at the end of our conversation, we promised each other that we acknowledged the job that had to be done, and we were going to get it done.

And I didn't know Fred's position, didn't understand it that well during the meeting, but after he left, I went to NASA's website, and I downloaded his bio, and so I was on a mission. I was going around the water community with the bio in my pocket, and I would tell people that "You're going to see some work being done now. And if you don't believe me, you can ask this guy right here."

And I know Fred was sincere in our conversation. And in working with Merrilee and Steve and David -- before Steve arrived -- I just want to say I'm very, very pleased with the job you've done, especially with putting this outreach program together tonight.

And as Merrilee stated, she said, "What do you feel about the meeting tonight?"

I said, "I'm not even thinking about the meeting tonight anymore because I can't wait until the second meeting, the third meeting, the fourth meeting, until we get everybody in the community involved, make them become informed that we're going to be doing something positive, like water quality and the groundwater contamination is concerned, and the community of West Altadena and Altadena as a whole."

Thank you.

MS. FELLOWS: Thank you, Bob.

Now, I'm going to introduce to you Steve Slaten. As I said, he is the remedial project manager for this program, and he's going to get to the meat of things.

MR. SLATEN: My name is Steve Slaten. I am the project manager for this cleanup project for NASA. And I do have experience working at other federal government sites, cleaning up federal government issues, groundwater, and others.

What I wanted to say -- maybe not. I wanted to start out by saying that NASA is serious, NASA is committed, NASA is responsible for -- as you will see, as I go through some of my technical presentation -- NASA is taking responsibility, is responsible for chemicals that are in the groundwater, and NASA is going to do the right thing.

So with that said, I think I'll start with the first slide.

And how does this look to people? We turned the lights up in here so it wouldn't be like a dungeon inside. If people can kind of see, I will proceed. I'll try to move around a little bit here, and this should work.

Most people will recognize the JPL here and the freeway, 210, Altadena, Pasadena, La Canada, Flintridge. This kind of gives the big picture here.

Now, I'm going to talk about the groundwater issues.

Next slide.

Here is a general concept of what we're going to be talking about. There's -- Jet Propulsion Laboratory is here. In past practices, back during the '40s and '50s, commonly used practices were to dispose of wastes in pits in the ground which would -- which we learned later can lead to problems with groundwater, chemicals in groundwater.

Chemicals have gotten into the groundwater over here or higher concentrations directly under JPL, and lower concentrations have dissolved into the water and moved off of JPL property under the Arroyo Seco, and there are wells that are shut down now that belong to the City of Pasadena where we do know the plume has migrated and indications of

plume is migrating further towards other wells.

So it's our job to take care of this, and that's what we're going to talk about tonight, the different actions that we're going to take to take care of the issue.

Next slide.

A little hard to see in this slide, but it starts to show -- gives you an idea of the approximate extent of the movement of these chemicals in groundwater. So they have moved across the Arroyo Seco and toward under -- deep under the neighborhoods here.

Can we back up one slide, Keith?

Yeah. What I'd like to point out, because I think it's important, is that the unsaturated soil is -- the actually dry areas, a couple hundred feet, 250 feet or so thick before you reach what we call the water table, which is the saturated soil where the groundwater is. And then there is another couple hundred feet in which these dissolved chemicals are below the top of that. So there is no direct pathway between where the chemicals are and the surface. They have moved down deep inside the aquifer.

Okay. Keith.

All right. So, once again, the dissolved perchlorate has moved out this way.

Also, I guess I should say -- go ahead and explain that there are two main types of chemicals that we

are dealing with.

Why don't you go back a few, Keith. I like this one so much. It's really easy for me to talk.

What entered into the groundwater over here were mostly what we call volatile organic compounds, which are common cleaning solvents. They've been used commonly in industry to clean, degrease metals. If you ever work on your car and clean your carburetor or something, you probably bought these type of things. They work really well, but they also -- when you dispose of them on the ground, they can get into the groundwater.

The other -- and we have not known about the volatiles for some time and there have been treatment systems in place for the volatiles, and that's been working well.

Also, organic compounds in water are relatively easy to deal with. People have been doing it for a long time. You can filter them out. And so that's been going on for some time. We've known about that.

However, what's happened in the last few years is we began to understand more about perchlorate. Perchlorate is a component of rocket fuel. It dissolves in water easily. It's a salt that dissolves in water and moves in water. And what we've found out in the last few years is that there's also perchlorate, which is moving in the

groundwater, and we need to deal with that as well as the volatile organic compounds. But it's not as easy, not as simple to deal with.

So these wells were shut off pending us finding ways to deal with the perchlorate in the water.

Okay. Let's -- we've seen this one now. Let's move on. One more.

Now, this shows you a closer-up, looking up from the top. Now, realize that what you see colored is several hundred feet below the ground surface. It's not at the surface. And what has happened is the original disposal occurred up here on the property. It soaked down deep and then has flowed off the property.

This -- this area here is -- we know is the extent of the levels up around 10 micrograms per liter. And there are indications that it has flowed further, and we're going to find the full extent, find everywhere that our chemicals have traveled, and we're going to take care of the full extent of all the migration of our chemicals.

So I'm going to use this slide, then, to talk about kind of the two phases that we're working on.

The first one I'll call upon-JPL groundwater. What we need to do is go up here, and we're going to be ground-breaking in February on this system, in which we're going to install extraction wells, a treatment system, and

reinjection. So there will be a closed loop of groundwater. We'll take the groundwater out. We will treat it for both volatiles and the perchlorates, reinject it back into the ground close by, and actually flush.

This is a higher level, what I'll call the source of higher levels that needs to be taken care of here so it doesn't cause any further problems in continuing to supply these lower levels of dissolved chemicals further out.

So, first, we're going to start up here, as I said, and then we will install this system this spring, and this system should be up and running by sometime in mid summer. That's the first phase.

The other thing that we're working on concurrently, and to come along a few months later, is a system that will take care of these -- this lower dissolved levels that are off JPL property in the deeper groundwater. And what we will do there is either use these wells or install other wells in this area to extract water. And that will contain any further movement, prevent any further movement, and start to remove these lower levels of dissolved chemicals in this groundwater. That water will be brought back up on plant sites to be treated, in the treatment plant for both the volatiles and the perchlorate, and then will be reinjected back into the groundwater initially.

Next.

Okay. I apologize for the photo not showing up too good. This was just an example of an ion exchange treatment plant, just a picture to give you an idea of what it looked like.

In this system, which is one of the options under consideration for treatment, it's called ion exchange, which groundwater is pumped up, the volatile organic compounds are removed, by carbon, and then the water is passed through an ion exchange with resin, in which the perchlorate -- this works much like your home water softener, which perchlorate ions are exchanged. It goes through a final polishing filter, then reinjected, and then may later be used by the City of Pasadena.

Next.

The other -- the main other type of option for treating water that also has perchlorate in it is called fluidized bed reactor. In this case, groundwater is also pumped up, similar to the last system, volatiles are removed.

The big difference in this one is a thing called a fluidized bed reactor. That's simply where the water is passed through a vessel, which contains a food-grade bacteria in which the bacteria actually eats or digests the perchlorate and completely destroys the perchlorate. And

then it's filtered to remove any remaining bacteria, and then the water can be reinjected in this case. It can also be made available to the City of Pasadena for use.

So do we have -- is there one more? That's the last slide, I think, I had for this.

I know that was pretty quick, and I tried to keep this at a high level for tonight, because this is the first time we've talked to you. I didn't want to bore you with a lot of technical detail. We can answer questions and go into more detail whenever you're ready.

Should I go ahead?

Okay. Let me introduce -- Mark Ripperda is my EPA partner on -- I call it our cleanup team. And I'll let Mark talk to you and introduce (inaudible) --

MR. RIPPERDA: My name is Mark Ripperda. I'm an engineer with the United States Environmental Protection Agency.

Before I get started, I'm glad Mr. Gregory thinks this is balmy because I'm freezing. It's good to know they make astronauts tougher than the rest of us.

So I work -- my agency, EPA, works with a couple of State of California agencies overseeing NASA in its cleanup effort. I'm going to introduce the two gentlemen.

This is Mr. Mohammed Zaidi from the California Regional Quality Control Board. His office is here in

Los Angeles.

This is Mr. Michael Iskarous, and he's with the Department of Toxic Substance Control in Glendale.

And my office with EPA is up in San Francisco.

And like I said, we oversee the cleanup that NASA is doing. And you might ask, "Well, why are all these governmental agencies looking over NASA's shoulder?"

And that's because about ten years ago the EPA put the Jet Propulsion Lab on what's called a national priorities list. That's also known as a Superfund site. The more complicated sites in the country, typically with groundwater contamination or old dump sites, can be called a Superfund site, and they have a whole set of laws that they have to comply with when they're doing their cleanup.

One of the important aspects of that is that they have to return the entire aquifer to drinking water quality. And they also have to make sure that nobody's being currently impacted by their contamination. So they put a treatment system on the City of Pasadena wells about 10 ten years ago for the VOCs that Steve was talking about. And then perchlorate came along later, so now we're overseeing their effort to investigate that and do the cleanup.

So all of their investigation plans, their work plans, and their final decision has to be reviewed and

approved both by the State of California and by EPA.

So we oversee the actual cleanup in the ground. There's one other State agency that is concerned primarily and very strongly with drinking water, and that's the Department of Health Services. And I think Vera is here to talk about that, so I'll just turn it over to Vera now to talk about actual drinking water.

The reason for that is because even though Steve was talking all about the cleanup, I was talking about the cleanup, one long-term option, if Vera's agency approves it, is that some of this water might be used by the City of Pasadena for actual drinking.

MS. MELNYK-VECCHIO: I'm not as tall as you guys are. Okay. How do I do this?

Okay. All right.

Hi everybody. Good evening. My name is Vera Melnyk-Vecchio, and I'm the regional chief of the California Department of Health Services, drinking water field operations branch, and I'm headquartered here in Los Angeles.

Our department is responsible to ensure that all of the water agencies that deliver water to you, the customers, is safe and potable, and meets all of the federal and the California state drinking water standards.

Now, for this particular project, we will be the

agency that will issue a permit to the City of Pasadena, because ultimately the City of Pasadena has lost its water supply due to this contamination and are looking to restore that water supply.

So we will be the agency that will be looking at the treatment technologies and determining their acceptability, and whether or not it could treat the water and provide a very safe potable water supply, and we will be the agency that will issue the permit to whichever agency will receive that water, in this particular case, the City of Pasadena.

We have a very, very, very extensive program reviewing any type of project that uses this type of water, meaning it's an impaired water source, it has been contaminated.

We've had a number of projects that we have done so far in the Los Angeles County area. We have a lot of experience reviewing the types of technologies and improving them; goes through a lot of technical review. And this is not the first project that has used contaminated water that has been cleaned up to basically endi (phonetic), that means no detectable chemicals are present in the water after the treatment.

So we're working simultaneously with the City of Pasadena, the Lincoln Avenue Water Company, working on the

project, and we're here with a strong hammer and making sure that everything is done appropriately. And I will be here this evening to answer any questions that you have.

Thank you.

MS. FELLOWS: Thank you.

We're just about to open it for questions. I just want to remind you of a couple of things. We do have the Spanish translator available. We also -- it's not required, but we would appreciate it if you would state your name and maybe the neighborhood you live in.

And I guess you wanted to introduce a few people.

MR. SLATEN: Yeah. I just -- before we got started on questions, I wanted to introduce some people that work here with me.

David Amidei from NASA. David worked on this project a lot last year, so he's got some good backup for me, if I need it.

And Keith Fields is a contractor who works for me. He's working the slides here, and he's got some more details, technical backup for me if we have questions.

MS. FELLOWS: Now, if you have questions, I've got one up here, a written submission, but if you would like to talk, raise your hand and bring a microphone down.

There's three people in the front, David. Why don't we go from the left to the right.

My left, your right.

MS. JIMENEZ: My name is Pauline Jimenez, and I live at 1075 Chevron Court off of Windsor. And we built our home in 1955. And there were veterans that had bought that land off Windsor and Chevron Court, and I don't know how far down.

But anyway, in 1955, I wonder how much danger we were in at that time. Because there's quite a few people around our street that have had cancer, and they have passed away. And I wondered if it had anything to do with that water.

MS. FELLOWS: Mark, will you...

MR. RIPPERDA: Yeah.

Can you hear me from here?

No? Okay.

We don't really know what the levels were in the groundwater back then when the City of Pasadena, Lincoln Avenue, detected the chemicals in their water in the early '90s (inaudible). So we don't really know what happened before that.

We do have some people from the State of California -- where are you? Yeah -- who can talk maybe a little bit about health effects, if you want.

We also want, for everybody who has actual health concerns, tonight's meeting was really to tell you what

NASA is doing. But we don't have medical professionals here.

So I would like, and my agency would like, to get the people who really want to talk about their medical concerns, maybe tell us what's going on tonight, but we'd like to set up a follow-up meeting and sit down with you and talk with you in greater detail.

All I can say about it tonight is in the '50s and '60s, we don't know what the levels were in the water. The levels in the '90s weren't that high. They were high enough that they needed to be treated, but they weren't -- I don't know if I call them really high.

MS. JIMENEZ: What year did they start closing the wells around that area? Because we're not too far from JPL.

MR. RIPPERDA: Yeah. NASA put a treatment system for the cleaning solvents, the volatile organic compounds, onto the City of Pasadena wells around 1990, '91. And that was because of perchlorate, they turned those wells off in the mid to late '90s.

MS. JIMENEZ: Because there was -- there were quite a few people that have died there around that area, but it could be a coincidence, but, you know, quite a few.

MR. RIPPERDA: They're doing health studies, but it really is complicated to look at health effects in the

neighborhood and correlate it, which is why we want to sit down with people from the communities and find out what the details are and talk about it.

MS. FELLOWS: And one offer I will make clear is that we will share all our data with you. And I know Bob Hayward will do that too. We'll bring our data to you, you can take copies and take it away and have your experts look at it, or have us try to help you interpret it as well.

MS. JIMENEZ: Thank you.

MS. COMFORT: Hi, my name is Melody Comfort, and I'm the vice president of Welfare and Health with the Pasadena PTA Council.

My question is, between options 1 and 2, which is the most complete treatment as far as the final safety of drinking water? And I'd like to hear a comparison of the cost of the two options of treatment.

MR. SLATEN: Okay. For the first part of the question, both systems will work very well. Both systems should perform to and below the cleanup levels that we need to achieve. Both systems have been tried and used at other places. So there's not a choice that's been made yet on which system. That will come later.

The second part of the question was cost. And we don't know the cost yet. We have not gone out for

competitive bids on this, so we don't know what the proposals will come back for in cost.

However, cost is not the overriding issue here. It's whatever system works best, whatever system gives us an overall best value, best results.

UNIDENTIFIED SPEAKER: (Inaudible.)

MR. SLATEN: Yeah, good point. And more specific details about these two systems will be -- sometime in the next month or so, we will be releasing a study that goes into depth comparing these systems and others and how they work. So there's a lot of information, if you want to see it, that will be ready to be seen soon.

MS. FELLOWS: And we will put this information up on our website.

MR. SLATEN: It is pretty technical. There's a lot of technical -- it's going to be thick with lots of technical detail, but it will have everything in there and more than you want, and we'll be ready to explain it.

MS. FELLOWS: Maybe come to your group and talk about it.

MR. RIPPERDA: I just want to add a little something.

Even though NASA doesn't have the bids back or the actual cost, just to put it in ballpark, some preliminary design stuff I've seen from your office is in the order of 20, 30 million dollars over the life of the

project, in a ballpark.

MR. SLATEN: Yeah. Either system, it's going to cost in that range.

MR. RIPPERDA: And just a little more information on the two treatment systems. The ion exchange system removes perchlorate, but then you've got a concentrated amount of perchlorate that has to be disposed of somewhere else, whereas the fluidized bed reactor actually destroys the perchlorate.

MR. SLATEN: Bacteria actually consumes it.

MR. RIPPERDA: Right. You know, the advantage the ion exchange system has is that it is like a water softener in your house, so it is very well-known technology, there's a lot of it out there.

The fluidized bed reactor is not nearly as widely used. I don't think anything is up and running yet for water consumption in the state of California. There are a couple, I think, in Texas, but it's just not as widely used as ion exchange (inaudible).

MS. BROWN: My name is Rosetta Brown, and I live on East Terrace in Altadena.

My question is for the gentleman -- the things up there on the board. He was speaking of water, and my question is, where did this water originate from? Was it wells that had been dug years prior to you taking over the

area?

And the second part of my question is, what type of contaminants and bacteria was in there, was found in there, to begin with, and how did you assess the fact of what it was that you were dealing with?

MR. SLATEN: Okay. Keith, can we go back to my favorite slide? And I hope I understand your question. I hope that this will -- I'll go back and see if I can fill in.

Groundwater. Most of the world's fresh water, available fresh water, exists underground. And that's where this water comes from. This water has been here -- for thousands of years, there's been water here. Okay?

So before people put in -- before people put in wells, these are actually wells that are put down into the aquifer. It's actually the wet ground, I guess you would call it. This is the groundwater supply. Groundwater is an excellent supply for the water purposes that are needed around here and around most of this country.

So the water was always here, but it became a resource when people learned how to drill wells to go down, suck it out. What you start out with is really good, high quality, clean water.

What happens when man comes along, sometimes, and

does things like dispose of their chemicals in the ground. Then those chemicals get in, move into the ground.

So what we have, the two types of chemicals that we have, once again, are the -- what I'll call the volatile organic compounds, the cleaning solvent type things, which we've known about for a while and dealt with, and the other one is this rocket fuel component called perchlorate. And those are the two types of chemicals that are in the ground. Both of those can be successfully cleaned out of the water, and the water can be made back to drinking water safe levels.

MS. BROWN: Okay. Thank you.

MS. FELLOWS: Let me go ahead with one of the written comment cards, and then we'll work back to the next row there.

This says "Based on the EPA standards," I think, "what are the VOC and perchlorate levels in the area, percentage or PPB?"

MR. SLATEN: Okay. Would you read that again? I was actually looking --

MS. FELLOWS: "Based on the EPA standards, what are the VOC and perchlorate levels in the area" --

UNIDENTIFIED FEMALE SPEAKER: We can't hear you very well.

MS. FELLOWS: Okay. Can you hear me better now?

Thank you.

I'll say it one more time because that -- "Based on the EPA standards, what are the VOC and perchlorate levels in the area?" And you talked about it a little bit earlier.

MR. SLATEN: Okay. Yeah. I didn't go into specifics on exact levels because I was trying to keep it pretty general.

Up here near the source, of course, the higher levels, and the color here tries to indicate that, and there are some levels here that have been detected well above drinking water standards.

Now, nobody's drinking this water right beneath here. And so levels are in thousands of parts per billion, so many times higher than the drinking water level.

We can get exact levels. I don't have all that with me tonight. Some of my people might have some of that on the top of their head. But -- if you really want it tonight. Otherwise, I can -- you can get with us and get the exact numbers.

What happens, though, is you go further away from the source as it get more dilute -- and levels get lower and lower of both the volatiles and the perchlorate.

However, down here where we've indicated this, this can still be above drinking water levels. That's why

it's important that we get out here, we get out here soon, and we do the right thing by stopping this from moving any further and by starting to clean it up.

MS. FELLOWS: Okay. Did you want to just --

MR. RIPPERDA: I'm hearing a couple little -- did you want to hear the numbers? We're having a little problem with the answer to that.

MR. SLATEN: Okay. Exact numbers, exactly where?

MR. RIPPERDA: Part of the question was what are EPA standards?

MR. SLATEN: Oh, okay.

MR. RIPPERDA: So for the cleaning solvents, five parts per billion is what he said is the cleanup number.

So there are two different kinds of chemicals. The cleaning solvents, one of them is trichloroethylene, and our cleanup number is five parts per billion.

The numbers in the Pasadena wells right now, the wells aren't actually operating so the numbers are lower than they used to be when the wells were operating, but they're in the range of 10 to 20 parts per billion. So our actual level is five, and the actual numbers now are, you know, around ten.

For perchlorate, both the State of California and EPA are working really hard to come up with a fixed number for perchlorate. It's very political. EPA is doing its

studies and actually finished its studies. And the president asked that the National Science Academy review our work to make sure that we did it right.

And the State of California is using some of our work and some of their own work and doing their own studies. But it looks like -- and Vera might correct me or not -- but it looks like the number is going to be around four parts per billion for perchlorate.

MS. MELNYK-VECCHIO: Between four and six.

MR. RIPPERDA: What?

MS. MELNYK-VECCHIO: Between four and six.

MR. RIPPERDA: Yeah. Between four and six.

And, you know, there's some environmental lobbyists that want it to be at one and the Department of Defense wants it to be at 200, but -- go figure. But it's probably going to be around four to six.

The actual levels at the Pasadena wells are 85. So that's -- you know, where you see the Arroyo well with the line going down, that's one of the City of Pasadena wells. And the number for perchlorate there is 85.

So is that the kind of detail you wanted?

UNIDENTIFIED MALE SPEAKER: Yes. (Inaudible.)

MR. RIPPERDA: Well, actually, he was saying that nobody is going to do anything until there is what is called the maximum contaminant level and MCL.

And NASA is actually committing to going out there to clean this up now well before EPA or the State of California sends an MCL. So NASA is acting as if the cleanup level is going to be in that four to six range, so they're starting the process now to do the cleanup, even before the government agencies set a cleanup number.

Yeah. He said it makes good sense, and I agree.

MS. MELNYK-VECCHIO: I'd like to add something.

Mark told you that for the cleanup levels, they would go to drinking water standard. There's actually two treatment facilities. One is for the on-site contamination, and then one is for the off-site contamination. The off-site ones are for the wells -- okay? -- the wells that the City of Pasadena has lost and would like potentially restored.

As I said, that's going to go through a whole big review process and permit process and a public hearing process. That water does not get treated down to drinking water standard. It gets treated lower. Okay? It has to be treated to the point where there's nondetect for those particular chemicals based upon the chemical and analytical procedures that are available.

So to reassure you that this treated water will not be just standard drinking water standards, it's going to be a hell of a lot lower than that, and that is

nondetect. Okay?

MS. FELLOWS: Okay. Go ahead. I'd like to remember where I am.

MS. THORMAN: I'm Dorothy Thorman, and I live on Mariposa near -- near the Arroyo.

And, you know, I did not like the way you started the meeting out with reminding us of the great things that NASA has done because it seemed to be like sort of a white wash. And I didn't appreciate it at all. And -- because, I mean, you know, NASA has done great things and that is for sure. My husband worked at JPL for over 35 years.

The thing is, I can't drink the water because -- and this is Lincoln Avenue water -- because I get a urinary tract infection. And I just recently got one because I went back to drinking water, the water, and I came down again with an infection.

And I just -- the thing that seems to me that it's taken NASA a long time to really get into this. Because I've gone to meetings for a long time about the -- you know, the groundwater quality and so -- you know, I guess I would just like to know from Mr. Hayward how long has it been since we first knew about a problem with the groundwater, and how long has it been since NASA, you know, finally took an interest in it?

MR. HAYWARD: Mrs. Thurman; right?

MS. THORMAN: I can't hear.

MR. HAYWARD: Mrs. Thurman?

MS. THORMAN: Thorman.

MR. HAYWARD: Thorman. Yes, ma'am. I know you and your husband.

As Mark alluded to earlier, we first became aware of the VOCs or volatiles in the groundwater, I think it was about 1984, when the Department of Health Services asked us to test our wells for the solvents, and we did find them in detectable levels, high detectable levels. And I think it was around that time we were given instruction to either treat the water before we delivered it to you or shut our wells down.

At that time, we did not have the means, financial or otherwise, to treat this water so we voluntarily closed down wells. From 1984 to 1992, we provided you with strictly imported water from the Metropolitan Water District, and that is the water was primarily the Colorado River water.

It wasn't until 1992 that Lincoln was able to install and start up its own groundwater treatment plant to remove the VOCs from our groundwater to nondetect levels. And that's when we reintroduced local water to our customers.

I'm sorry. The City of Pasadena actually started

up their VOC treatment plant two years before Altadena did.

As far as the dates of knowing the chemicals were there, I think 1984 would have been the earliest date that Mark alluded to. We don't have any idea what levels were since that time -- before that time, but we have been monitoring groundwater continuously since 1984. And the spectrum of different types of chemicals that we test for on a regular basis has grown tremendously since that time.

And if you -- anyone's interested in seeing the type of chemicals that Lincoln tests for in their water, we would be glad to share that data with you so you can see how extensive it is and the levels that our water is actually detected at.

And I really don't know if I can add any more to that.

MS. THORMAN: The other question was, you know, when did NASA start responding to the problem of groundwater?

MR. SLATEN: The question was, when did NASA start responding to the problem of groundwater?

In 1990, NASA paid for a water treatment system for the City of Pasadena wells to remove the volatile organic compounds. And I guess you would say that was the first major investment to start --

MS. THORMAN: So 16 years. No. Not quite 16.

MS. FELLOWS: Sean, were you standing up because you

wanted to say anything or because you wanted to see?

Okay.

MS. DORSEY: Good evening. My name is Cheryl Dorsey. I live at West Altadena. I'm a 10-year resident of Altadena.

And I guess basically what I wanted to direct my question and piggyback off of what this gentleman over here with the EPA --

MR. RIPPERDA: EPA.

MS. DORSEY: -- was saying with regard to NASA's voluntarily stepping forward and saying no matter what the contaminant level is, we're going to go ahead and take care of the problem.

I remember when this contaminant actually hit the media. It was front page news in Pasadena Star News about 15 months ago. And at that time, there was an indication that there were three to five wells in Pasadena that were being closed as a result of the contaminants.

I guess, basically, what I'm trying to find out is, it didn't state in the media that NASA had decided whether the EPA or the State regulatory agencies said the water was safe, but they were going to go ahead and start cleaning up because they were aware of the fuel that had been dumped and what had leaked into the water table.

What I'm trying to find out is over that 15-month

period, this is the first public meeting that I have been made aware of, is the first communique that has gone out to the members of the community -- has it taken 15 months to make a decision as to what we're going to do to clean it up, or is it going to take another 15 months to decide which treatment plan we're going to do? Is the red tape going to continue to snarl the cleanup? I guess that's what I'm trying to find out.

MR. RIPPERDA: You want me to answer that?

MS. DORSEY: Yes, please.

MR. RIPPERDA: I guess I could say there's a little bit of both. There has been some red tape. You know, me, my agency, EPA, and the other regulators have had some problems with NASA in the past. They have dragged their feet on holding public meetings and not actually reaching a conclusion. They've done a lot of science, trying to determine what the best way to clean it up is, but we have, in the past, been a little frustrated with actually them taking it from science to action.

Sometime in the last few months, I can personally tell a difference in how NASA treats us and the community. You know, the community is represented by Bob Hayward, who runs the water company, and the other water purveyors in the area, and how they opened their internal meetings up to the water purveyors and how they communicate with us and

the kind of commitment they've made.

And I've heard they had some changes back in their headquarters in management, and they've pretty much been given the green light that the people here at JPL need to do whatever it takes to take care of the problem.

I'm just kind of speaking off the top of my head here, but it wasn't like that a couple of years ago. You know, we used to be frustrated, like you were. But it really feels like NASA is committed to it now.

All of these cleanups dealing with groundwater do take a long time. Once they select the final remedy to actually clean the groundwater, it's going to take 10 to 20, 30 years.

So the fact that NASA is going to, you know, take a year or so to select what they think is the best way to design where to put the extraction wells, where to reinject the water, in the grand scheme of things, it's pretty good to do some thinking up front since the total cleanup could take 30 years.

But they're going to start their on-site, hot-spot remediation relatively soon, sometime this summer. They're going to start working on it in February. And the off-site treatment, which is going to stop the plume from growing, they're in the process now of going out to bid from contractors to select the technology. So they're

taking some really good steps now.

MS. FELLOWS: Let's move up, David, to the gentleman in the dark shirt there.

MR. PETERSON: Hi. My name is Tom Peterson. I live in West Altadena.

I appreciate the meeting, and I appreciate that NASA and JPL is here and telling us what they're doing. But as a resident and a homeowner in this area, what do I need to be aware of? Do I need to start installing some kind of filters on my tap water?

I'm hearing that the Lincoln Avenue Water Company in my flyer is filtering VOCs. They're now talking about other components in the water that's 85 parts per billion when it should be four to six. That's a lot of chemicals in the water.

Now, I don't know what the side effects of that chemical is, but as a homeowner, I want to know what do I need to do? Because I don't think I'm being protected.

MR. SLATEN: Okay. The first thing I would like to point out is that where the levels are that high, that water is not being pumped. It's not being used. It's sitting --

MR. PETERSON: How do I know that?

MR. SLATEN: The well is turned off.

Vera.

MS. MELNYK-VECCHIO: Okay. As I said, we're the regulatory agency that oversees the water utility that serves water to all the customers in the County of Los Angeles. The City of Pasadena and Lincoln Avenue Water Company, Las Flores Water Company, Rubio Canyon is just one of the many systems that we oversee.

There are numerous constituents that have to be monitored on a frequent basis. They have to report that information to us. If there are any violations of standards, we do enforcement actions. And so the -- when a water system says they are not serving that water, they are truly not serving that water. Because, otherwise, they would be in violation. They would have to do customer notification. And, of course, their trustworthiness and integrity is down the tube.

So water systems react responsibly. If a well is determined to be contaminated, the typical response is we're going to take that well out of service. We're going to find a treatment process that's going to eliminate that chemical. And then, when we are able to finance that, build it and operate it, then we will serve the water to consumers.

But, in the meantime, I can assure you that the City of Pasadena, Lincoln Avenue Water Company, Rubio Canyon Water Company, and Las Flores Water Company are

serving water to you that meet the drinking water standards.

MR. PETERSON: I have one more problem with it.

Back to the issue of the perchlorates. If the Lincoln Avenue Water Company is not filtering that out, doesn't have that in their system, that is getting into the tap water.

MS. MELNYK-VECCHIO: Okay. If you go back to his favorite picture, okay, that shows where the perchlorate plume is, it's on -- that plume is the leading edge that is just about ready to hit the Lincoln Avenue wells.

MR. PETERSON: Okay.

MS. MELNYK-VECCHIO: So, at the present time, we just got some detectable levels of perchlorate in the Lincoln Avenue wells. And Lincoln Avenue serves two sources of supply: They purchase water from Foothill Municipal Water District, which is surface water supply, and then they have their well water. Those two waters are blended together and then hits the (inaudible) system.

So that's why I can tell you with assuredness that they are meeting what the current standards are.

MR. PETERSON: Okay. That would be fine for today.

But what do we do a year from now? If this cleanup takes 30 years to take place, that plume is going to grow.

MS. MELNYK-VECCHIO: Okay. So if -- what you're saying, if that plume hits the Lincoln Avenue wells, what is Lincoln Avenue going to do?

Lincoln Avenue is more likely going to take those wells out of service. They're going to go to NASA and they're going to say, "NASA, give me the money to treat these wells."

MR. PETERSON: But as a homeowner, isn't there something that I can do?

MS. MELNYK-VECCHIO: No. There's nothing you can do. There is not a home filter that you can put on under the sink that is going to take out the constituents of concern. Okay? There's just nothing out there. Okay? The treatment process, like this ion exchange process, it's a very selective resin. It's perchlorate selective. It's going to remove that stuff first. Okay?

Then you have all different kinds of resins. You are not going to be able to go to your Home Depot or your Lowes or some filter store and buy a filter that can take this out. Okay?

MR. PETERSON: The reason I was asking is because I don't want to sit here on my hands thinking, "Oh, you guys are all going to protect me" when it's taken a long time to get to this point. I don't know that I can trust everybody up here to say that they're really going --

MS. MELNYK-VECCHIO: I can -- I can understand that.

But what I'm telling you now is that you have our assurance that you will be getting water that meets drinking water standards, and you currently are. And that if the plume reaches Lincoln Avenue Water Company, Lincoln Avenue Water Company is going to do the right thing.

They are going to take that well -- those wells out of service. They're going to go to NASA, and they're going to say, "NASA, give me the money. Give me the money to treat that water," and they're going to treat that water. And they're going to turn their wells back on when they've got a treatment system that can remove it.

MR. PETERSON: Thanks.

MS. MELNYK-VECCHIO: You're welcome.

UNIDENTIFIED SPEAKER: Can you tell me (inaudible) ongoing testing?

MS. MELNYK-VECCHIO: Yes. The water companies do test their water on a fairly frequent basis. It's not daily. Okay? Because you can't afford to pay the cost of the -- going to a laboratory and having those analyzed on a daily basis. But a lot of these companies monitor their wells on a monthly basis. And if they're doing treatment, they're actually treating water on a weekly basis.

And if there's an online analyzer available for the constituent, most of the water systems will purchase

those online analyzers so they have instantaneous analytical results.

So the water systems are not just standing on their -- on their thumbs. They are monitoring, and they are making sure that they are complying with the drinking water standards. Or for perchlorate, we don't have a drinking water standard; that they comply with the action level. So they are being very, very proactive.

MS. FELLOWS: I can -- I can see quite a few questions, and I know time is going on. So let me just say we'll stay here as long tonight as we can to get all your questions. There's a meeting tomorrow night. If you still feel frustrated and haven't been heard, we'll have another meeting before (inaudible), and we're going to make sure we can hear everybody.

Let's go to the woman in the yellow right next to (inaudible).

MS. VANDELOW: Hi. My name is Wendy Vandelow, and I live in the Meadows, which is northwest. Highest part of Altadena, I think, just about.

And I'm wondering, the well -- it said "Arroyo well." What area does that well or did that well service?

I grew up in the Meadows, I've lived here my whole life, you know, and I'm just wondering, you know, which wells are servicing which areas, and that one in

particular, since it has been closed.

MR. SLATEN: That is a city -- the Arroyo well is a City of Pasadena well. Water went to the City of Pasadena.

MS. FELLOWS: So Lincoln Avenue serves your area, and none of your wells have been affected.

SPEAKER: None of them have been contaminated yet. Thank you.

MS. BENTON: My name is Barbara Benton. I've lived here for 34 years. My neighborhood is the Florecita Farms area, which is directly east of JPL. Our neighborhood has approximately 124 homes above Altadena Drive.

We have experienced one in eight cancer occurrences and deaths over the last 20 years. We've had approximately six of those deaths in a corridor that runs directly from JPL through the Florecita Farms area; Florecita Way, Florecita Circle, Florecita Drive, Florecita Crest.

There is nothing you can say that will convince us that that is not directly related to the plume that's been growing under our neighborhood for 50 years. We have members here tonight of our association who have lost family members to various forms of cancer. We have people in our neighborhood who are sick with cancer. We have people who are worried about getting cancer.

My experience is that I used to work for

USC School of Medicine doing cancer research, retrospective studies. I know a cluster when I see it.

Why you do not have medical people here to explain to us what's going on and to help us with our cancer rates and what should be done about it, I do not understand.

The lady that spoke about people in her neighborhood having cancer, I'm sure she speaks for lots of areas around here who are suffering.

We are suffering. We want to know what those of us who are still cancer-free can look forward to. We think that any and all of us who would like to have medical attention, it should be provided for us; testing, monitoring, watching over time.

You guys came here within the last 10 years to clean this up. We have been sitting on this time bomb, this inverted atomic plume, if you will, for 50 years. I've lived here 34 years. Some of these people have been here longer than I have. This is no joking matter. There is nothing funny about it. We are seriously concerned.

There is a testing well at the base of our street, testing well -- monitoring well No. 17. Directly next to that well, we have had, in the last two weeks, a family experience the birth of a child conceived on that spot who was born with neurological birth defects.

We have had trees die in our neighborhood for no apparent reason.

We are very, very concerned, and we want something done about it. We want you to own it. And we want you to tell us what kind of compensation we can expect as a neighborhood. And I would like to think that everybody else who lives within the reach of this plume will come forward, will ask their neighbors, find out what's going on in your neighborhood about the cancer rate.

I know that I've seen it. And I think that NASA, JPL has to be accountable for poisoning our neighborhoods.

I don't have any questions. That's just a comment and observation I wanted to make.

(Applause.)

MS. FELLOWS: I -- let me at least say that we will get a medical representative to meet with us. I know you've got a report you would like to share. We'd like to share our data with you.

And we'll try to set one up in the next six weeks, two months, and make sure you know -- we'll send it out to the whole distribution, and we'll make medical representatives a critical part of that analysis, that meeting.

How about the one in the middle there, Kim, the gentleman?

MR. STEINBACHER: My name is Bob Steinbacher. I'm a resident of Altadena for 51 years. I live on the west side of Altadena.

I've seen a lot of my friends also die from cancer.

I had Lincoln Avenue water for 51 years also. I have attended many of the Lincoln Avenue Water Company annual meetings. I have looked at their numbers that they have as to what constituents they have, what regulations they have to follow. You make it sound like a well close to you is affecting your family directly.

Did you understand that the water that is circulated through the Lincoln Avenue Water system comes from the wells, comes from the Municipal Water District? It's a mixture of water. It is tested quite often so that it is the quality that is meeting the standard that the government has.

UNIDENTIFIED SPEAKER: (Inaudible) are you asking --

MR. STEINBACHER: Well, you were the one that brought up the question as to whether the water is causing these particular cancer cases, these cells.

Now, we all know here -- I think we all know people who have died of cancer. There are so many reasons a person dies from cancer that, yes, to come in here and ask why there was not some medical representation on a

discussion that has to do with cleaning up two specific things, this is what the meeting was announced for. These people are trying to tell us what they are doing, what the progress has been, what kind of measurements they're making.

Okay. I happen to be a JPL employee also. My field was measurements.

Hey, my field is measurement. And if you'll just quiet down for a minute. If you can't measure something, you can't do anything about it. It's when you can measure something that you can begin to take measures.

It's the reason that cancer has run rampant in this world. If somebody knew what caused cancer, or what caused the specific type of cancer, and they do know some of those things, they do something about it.

The people who are taking care of water supplies are doing what they can. As the measurements get better and better, we get better and better water. But until we know what cause and effect is going on, to come up and say that because I have some people that I know that had common things, it's got to be a little bit more research than that.

Now, I realize I'm getting into some pretty thin ice, and I think I have rankled a few nerves (inaudible). And that is that you expect the Water Company who has been

monitoring the water for you -- if you want to find out what's going on in the Water Company, find out what they are doing to supply you the water.

If you find something that you think is at fault, that can be corrected. But they're doing what they have to do. The regulations are there. The measurements are there. We know what kind of water we're delivering.

UNIDENTIFIED FEMALE SPEAKER: Too little, too late.

MR. STEINBACHER: Too little, too late for what? They've been regulating water as long as you've been living here.

UNIDENTIFIED SPEAKER: (Inaudible.)

MS. FELLOWS: Let's go to the one in the back, a couple of rows there.

UNIDENTIFIED SPEAKER: We are not here to tell you not to clean it up and to help you clean it up (inaudible). But there are some problems that --

MS. FELLOWS: Can we have a mike on that? Let's get the mike to you right after this.

UNIDENTIFIED SPEAKER: Yeah. The guys in the front row (inaudible).

MR. COLLINS: My name is Mark Collins. I live in the Marengo area of Altadena.

I want to get back to the science of this for a minute. I was curious who the bidders are that you have

been referring to, that's question one.

Question two, with the ion exchange process, you mentioned before there's a lot of perchlorate residue, concentrated, that comes out of that. How do you dispose of it?

I have heard in some instances they actually burn it, and I wonder about the fallout from that, if it just comes right down to the earth again.

And thirdly, the bacteria process, to me, is a natural process, which is also a very slow process.

Does that involve holding ponds or the treatment lagoons where the water has to slowly go through this?

I'm assuming we're dealing with billions of gallons of water, and I'm wondering if either of these solutions, at least the bacteria process, if it's too slow to do anything. And the iron exchange process, if we have a byproduct that is just as volatile as the water we're dealing with right now.

MS. FELLOWS: Okay. So we have the bidders, the disposal, and then the bacteria.

MR. SLATEN: Help me remember those. I'll forget them.

There are no bidders yet. We're going to be going out soon, probably next month, for requests for bids for people to get proposals. So there are no bidders yet.

That's coming soon. And then we're going to ground break, we're going to be moving right ahead. That's all coming up in the next few months. That should all be operational, like I said, by the summer.

The second question about what happens to the concentrated perchlorate. Different ways to deal with it, and whatever the proposal is, we'll evaluate that.

So we don't have one specific way to deal with it. There's a couple of ways to deal with it that I know of, but it can be destroyed or it can be burned in different ways. Any way that might be chosen will have to be protective.

You're asking about the biological activity. It occurs inside a tank, as water flows through the tank. And we feed, basically, vitamins and food to the bacteria, and they destroy the perchlorate as it moves through the tank. There are no -- no ponds -- sewage ponds or anything like that.

MS. FELLOWS: Back there. Yeah, right there.

MR. SANDERS: I'm Jesse Sanders. I live on El Nido.

For a number of years, there was a rock quarry down in the Arroyo. Was contaminant only limited to the water or was the ground, dirt in that area also contaminated?

In fact, from your favorite picture, it shows

that probably on the water level that means that the ground above had been leach cleaned?

MR. SLATEN: Okay. I think -- let me see if I understand the question. You're asking if -- well, let's go back --

UNIDENTIFIED SPEAKER: He's asking about the soil.

MR. SLATEN: Okay. To recap, on the facility were seepage pits where things soaked pretty much straight down, got to the water, and then went down. So the only area where there was soils that originally had the chemicals were right on the facility. Then it went straight down, went to the water, went down and over.

MR. SANDERS: There was never -- I want to know was there any fallouts? Was it just a drip? Did it air, wind, float, land on the ground? Do we have to worry about contaminants in the soil?

I know you're saying it's seeping straight down.

MR. SLATEN: Directly into what they call seepage pits, straight down into the ground on-site.

MR. SANDERS: I mean, it just didn't run? It didn't spread like water? Are liquids usually spread? They usually spread out.

MR. SLATEN: These things are --

MR. SANDERS: I mean, you had pits already dug for the seepage to go into the ground.

MR. SLATEN: Correct.

MR. SANDERS: (Inaudible) on purpose.

MR. SLATEN: They put it in on purpose to have it seep into the ground.

MS. FRANCES: My name is Elizabeth Frances, and I live right on the edge of Hahamongna, which means we are neighbors with JPL. Okay.

JPL has caused the contamination. Definitely, they have caused it. And we know that perchlorate is cancerous. It caused cancer. No one has to guess about it. It causes.

Now, NASA should be here. Is there a representative from NASA?

MR. SLATEN: I am from NASA.

MS. FRANCES: You're from NASA.

MR. SLATEN: I am from NASA.

MS. FELLOWS: The whole water cleanup team is from NASA.

MS. FRANCES: All right. Are there other -- we hear this costing so much money and so forth to start things, and I read this -- the pamphlet that you said that you have a removal action proposing.

What stage are you in in the process of cleaning up the perchlorate and the VOC --

MR. SLATEN: Okay.

MS. FRANCES: -- in the process?

MR. SLATEN: All right.

MS. FRANCES: Now, you said that -- and I understand that you can use this removal action at any time to keep the spread.

Have you used that removal action, or are you just proposing to use it now?

MR. SLATEN: Okay. I will answer that. And let me start by saying NASA understands that we are responsible, and we are taking responsibility. That's why we're here and that's why we're taking the action.

In the last few years, there have been several things that have gone on. We have done some small scale studies where we've treated groundwater, we've removed groundwater and treated it. We found out what's successful.

Now is the right time to start the next phase, which is to put in larger systems which will suck up a lot more groundwater, treat that groundwater, make it clean, and start to find the final solution here, which is to make the whole area clean again.

MS. FRANCES: Okay. So which means that that will be -- the time limit on that will be how long?

MR. SLATEN: We're groundbreaking in a few weeks. We will be starting the real pumping and treating and cleaning

this summer. And then --

MS. FRANCES: This summer?

MR. SLATEN: This summer.

And then, within one year, we'll have another system in for the off-JPL water to begin bringing it back in and cleaning it up and stopping any further spread and cleaning that up.

MS. FRANCES: Okay. On La Canada, Verdugo Road, the street that I live on, is a long name, but it's a very short street. There are 11 residents there. Four have died from cancer. Two are living with cancer. And my husband passed from cancer.

Now, I do not say it is directly related to the perchlorate. But I would like to have some data as to how an area for NASA to go through and do that for their neighbor -- we are NASA's neighbor. So they should take a more personal concern, concerning the neighbors. So I think they should make a survey of the cancer deaths and the people suffering in that close area to JPL.

Thank you very much.

MS. FELLOWS: Let me just make two comments. One is that NASA does own the facility now, and it got transferred to NASA in 1958. The Army was the primary introducer of the use of the seepage pits and the -- the U.S. Army. And NASA, even though it's a later owner of the property, has

promised to make good on all this activity that it sort of inherited.

And also, we don't have a medical representative here, but we do have a toxicologist from the office of Environmental Health Hazard, and Dr. Howd is going to respond a little bit to some of the cancer concerns.

MR. HOWD: Hi. I'm Bob Howd, as Merrilee said. I'm head of the risk assessment group for drinking water chemicals in California, for all the drinking water.

We have -- we're in the process of doing a risk assessment of perchlorate. But I would like to say that we know a heck of a lot about perchlorate. In studies over many years, it has been used in clinical medicine at very high doses.

We have some argument right now about what is an absolutely safe level. But we know, actually, what an effect level is in normal people. And the number that was used by a gentleman over here earlier of about 200 parts per billion in drinking water is the effect level -- or actually, it's just the level which has not quite a significant effect. So it's called the threshold effect level.

What we're arguing about now is how much lower than that level do we have to use as the drinking water standard to make it absolutely safe for everybody; that

there isn't any doubt left. And that's where we're arguing about a level that's much lower than 200 parts per billion.

So first, when you talk about a plume with five or ten PPB, that isn't the level that one would associate with everybody getting sick. No. That's the level that will keep anybody, under any circumstances, from getting sick if we possibly can agree on what that minuscule level is. And that's why we're having a hard time coming to a resolution of that. And it is expensive if you go too low. So that's why we're having a long and laborious process to get to that absolute safe level.

Now, the lady over here talked about cancer, and I must respectfully disagree with that. There's no evidence at all that perchlorate causes cancer. Even in the very high dose studies in people, there isn't any cancer.

There was a couple of studies in which some rats got cancer at levels which caused a huge overgrowth of the thyroid, and when the cells turn over really fast, then some of them are more likely to develop an abnormal development that leads to cancer. But at the threshold levels that may inhibit the uptake of iodine into the gland, which is its primary effect, that's not the kind of thing that happens.

So we really don't consider perchlorate a

carcinogen. We have no reason to suspect it causes cancer. And that is just not the concern at all.

UNIDENTIFIED SPEAKER: (Inaudible.)

MR. HOWD: I'm sorry, but I don't know what the JPL pamphlet said. But we do the risk assessment, and we're not saying that.

MS. FELLOWS: Did you want to follow up, ma'am, in the yellow? Did you want to say something?

UNIDENTIFIED SPEAKER: No.

MS. FELLOWS: Okay. Then --

MR. ROGERS: I'm Don Rogers from the Pasadena Audubon Society.

We've been interested in Hahamongna, and we're intrigued that -- at least, talking before the meeting, that the solution for placement of the treatment facility will be on the JPL site. I understand that is only for the hot spot; that the second part of the process is treating the wells.

And my assumption is the box or VOC plant that's there now is going to go away because you will incorporate that into the facility that you're going to place on the JPL site. Is that correct?

Are you -- the question is, are you intending to place any kind of water treatment facility on Pasadena property?

MR. SLATEN: No. No water treatment facility is going to be built off of the JPL site. There will, however, down in the existing parking lot, need to be a pipeline that's built through the parking lot and over onto the JPL site, but it won't dig into the creek bed there.

MR. ROGERS: And the current VOC plant will go away?

MR. SLATEN: The current VOC plant is not being used because it does not treat for perchlorates. But that's not owned by NASA, and I don't know what the future plans are for that.

MR. ROGERS: So, basically, it's not going to be in use again -- right? -- or is that up to the City of Pasadena to decide?

MR. SLATEN: That would be, yes.

MR. ROGERS: Okay. Thank you.

MS. FELLOWS: Let me go to one of the questions here.

"How does rocket fuel and volatile organic compound affect your health? And can we have a medical representative attend our next meeting?"

And, yes, we'll work with medical representatives at upcoming meetings.

And we probably talked about rocket fuel and VOCs affecting health, but I don't know if there's some general comment anybody wants to add.

UNIDENTIFIED SPEAKER: You think that maybe it would

be better in the meantime to use bottled water (inaudible)?

MR. HOWD: There was a question -- was should you use bottled water.

Now, I detect the presumption that you can have water that doesn't have any chemicals in it, and it's going to be really safe.

Well, actually, all water has chemicals in it. Bottled water (inaudible) about the same as drinking water. And well -- it has a little of this, and it has a little of that.

If you want to buy bottled water because you're concerned about the water in your community, by all means, do so.

I don't. I live in Santa Clara Valley, by the way. It's been known for volatile organic chemicals in the groundwater there for the last 20 years because of some little problem of Fairchild. But I still drink the water because I am a toxicologist, and I'm familiar with the fact that what are the levels of chemicals that I'd be concerned about.

The state's drinking water levels are quite stringent. If it meets your state's drinking water standard, as your current system does, I really wouldn't be concerned about it myself.

SPEAKER: (Inaudible) the boiling the water?

MR. HOWD: Boiling your water will kill bacteria and will drive off volatile organic chemicals. It won't drive off perchlorate because it isn't volatile, but you don't have any perchlorate in your water, anyway, because the wells were shut down.

MS. FELLOWS: Go ahead. And then I'll read the next one.

UNIDENTIFIED SPEAKER: I'm (inaudible) Pasadena Sierra Club.

The City of Pasadena's Arroyo Seco master plan that has passed last September included many projects in the Hahamongna area. And some of them were marked with a paragraph that said, in effect, the project -- the future of the project or the timing, at least, depended on cooperation with NASA and JPL over these contaminants.

Do you know yet what the implications of this plume at that depth and the plan to clean up mean for some of these projects, such as the sculpting out of the basin to the north of Devil's Gate damn?

Is it possible to tell now how that might affect the timetable and the spreading basins? There are those spreading basins down on the east side, and a proposal to build more spreading basins.

MR. SLATEN: I'm not -- I don't know about the specific activities that you're talking about, and I don't

know about the plan, but my general response would be, since the chemicals in groundwater are hundreds of feet below the surface, that there's -- that usually there wouldn't be an effect on what we're doing to those things you're talking about. That's in general.

Until I understood specifically what those plans were, I couldn't be more specific than that.

MS. FELLOWS: That is something we can follow up on with the City itself.

Oh, I thought he was going to read the next one here.

"Does the imported water from Metropolitan Water District have perchlorate, and at what level?"

And that's not really a question for the NASA people. So DHS, the Department of Health Services, will respond.

MS. MELNYK-VECCHIO: Okay. The Metropolitan Water District has two sources of supply. They have the State project water which comes from Northern California, and they have the Colorado River supply which comes from the Colorado River. Okay?

The Colorado River supply does have perchlorate present in it, and that is due to several responsible parties where the perchlorate has discharged into the Las Vegas wash and then ultimately into the Colorado River

supply.

The levels that have been -- that Metropolitan Water District has provided has varied has between four and six parts per billion. That is where we're looking at right now of establishing a maximum contaminant level.

So is it a safe level? That's still debatable, and that will be determined based upon what the risk assessment people decide will be our MCO.

So, yes, there is perchlorate in the Metropolitan Water District supply.

One other point I'd like to make. Okay. The supply from the Colorado River is pretty limited. We've lost -- California has lost a lot of its rights. The more prevalent supply is from Northern California. And MWD always has a mixture of the two water supplies. It is very, very rare that, in the Pasadena area, you would actually get all Colorado River water.

The San Diego area gets all Colorado River water, but the L.A. area does not. It's typically a mixture of the Northern California water through the State project and the Colorado River water.

Typically, the blends can vary anywhere from 60 to 100 percent State project water. So you never get a full, full dosage of Colorado River water. So those -- that perchlorate level has been blended down. Okay?

MS. FELLOWS: There was a second part to this, and with the cards, it's hard to tell if they've been submitted before the question's already been asked, and it's sort of been asked, but in case you had a question still.

"Ion exchange has been in use for treating drinking water in L.A. and San Bernardino Counties for some time. Why has it taken NASA and Lincoln Avenue Water Company so long to begin treatment?"

MR. SLATEN: We touched on that. Ion exchange has been used at several places. The other one is a newer technology. We've been studying the best way to employ these technologies for the last few years. We are ready now. Now is the time to scale this up and really start pumping a much larger volume of water.

So what I can say is the time is right. We're getting busy now, and we're going to do a lot in this year. We're putting our money where our mouth is and getting these systems in.

MS. FELLOWS: Okay. In the back.

MS. WILLIAMS: Hi, my name is Viola Williams. I grew up in Altadena. I've been here for 42 years.

And my question is, why is it going to take 30 years? I mean, is there any way that this process can be expedited, or do you have, like, drip, drip, drip, and it'll take 30 years when it's all done? Because why does

it take another year to put a well off-site? I mean, why can't you put up a multiple of wells?

People's lives are in danger. People -- I mean, the animals, everything, our whole system in this area is being threatened because of the problems that you have with this "P" stuff -- I can't say it.

But, anyway, I mean, and then the other effect that it's going to have is the property value of the homes in this area. I mean, that's -- 30 years is a long time.

And you're talking -- I mean, my father passed of cancer. My mother has had two bouts of cancer. So -- and I don't live right next to JPL. I live like just maybe -- just east of -- west of Lincoln. However, it's still there. And there are other people in the area that have died of cancer as well.

So we can't just say it doesn't have an effect because it really does, and we all know that. So let's just take that lid off.

But is there a way that this process can be expedited to be more beneficial to the whole area of Altadena and Pasadena as opposed to just saying, "Okay. The time is now"?

No. The time was 20 years ago. And how can we expedite it even more faster than 30 more years from now?

MR. RIPPERDA: Yeah. I'll start. I'm from EPA and

some of that is for NASA, and some of it might be for me.

We certainly understand that people are concerned about the health problems and, you know, the time frame and all of that. Physically, it does take that long to clean up the ground, you know.

An important thing to remember is that, while the groundwater is being cleaned up, water is being treated, and any water that's going to the public is either coming from another source or is being treated before it comes to you.

So even though it may take up to 30 years to clean the water that's in the ground, the water that goes into your pipes and taps is clean. It's clean now because alternative sources of water are being used. As soon as these chemicals were discovered in the water, alternative sources of water were immediately switched to.

So as soon as these chemicals are discovered, whatever the chemical might be, and, you know, one of us government agencies, the toxicologist, the scientist says that might have a health effect, then those wells have to be turned off, and the water companies have to use alternative water supplies, or they have to treat.

The reason it takes up to 30 years to clean the water in the ground is that -- you know, I'll use an analogy like a sponge. If you dip a sponge into some soapy

water, and you wring it out, it's all soapy. You run it under the tap, you wring it out, you can do that 20, 30 times. You're immersing the sponge in clean water and wringing it out, and it's still got soap in it.

So now you imagine that you've got the ground, and that's like a giant sponge. You know, instead of being able to wring it out, you're just sticking a straw into the one end and sucking on it. And so it just takes so long to flush clean water through there. And so that's --

UNIDENTIFIED SPEAKER: (Inaudible) doesn't make sense. Why not put more than one processing center up? (Inaudible).

MR. RIPPERDA: As many wells as you put in, you can't physically -- you have to remove the water, treat it, put it back in, and flush that out through the system so many times that, to actually clean the ground, you could put a hundred wells in there, and it would still take almost as long.

But even while that cleanup is happening to the ground, the water that you're getting isn't the dirty water from the ground. It's treated water. So there's two separate things. There's cleaning the water that's in the ground, and there's bringing the clean water to your homes.

And the water companies absolutely, you know, with DHS and Vera looking over their shoulders, have to

give you clean water. No matter how long it takes --

UNIDENTIFIED SPEAKER: (Inaudible.)

So I mean, is it safe? I mean, is it really clean? Because they haven't established the question. They haven't established a maximum contaminant level (inaudible).

So how can you say now that the water is safe? And you have this other stuff that's in the water that is not safe. What is safe to drink?

MR. RIPPERDA: Yes. Even though the State or the EPA hasn't officially said "This is the contaminant level that we're going to declare safe," we know what that is in that range of four to six. And all the water companies have been listening to Vera's group at DHS and saying "Even though we don't have an official legal level, you still need to sell water that meets what that level is going to be."

So even though you hear us sometimes say, "Oh, well, an official level at MCL hasn't been set," the water companies have been acting as if that level has been set.

So the water companies are afraid of liability. They want to sell water that they think is safe.

So as soon as the scientists start to say, "Oh, this perchlorate is bad." And we know it's bad. And the scientists say, you know, "It's bad, and it may be like

four to six, it should be completely safe, with no risk." The water companies, you know, they want to sell safe water.

And, you know, we know it's not just perchlorate. You know, somebody said, "Well, perchlorate doesn't cause cancer," and that's --

UNIDENTIFIED SPEAKER: (Inaudible.)

MR. RIPPERDA: Right. And that's true. And there are other chemicals there from NASA. So I don't want you to think that we're up here saying, "Oh, no, cancer is not our problem."

You know, we realize that there's a mixture of chemicals there. We're not trying to minimize it today. We want to hear your concerns. You know, so we understand that.

MR. SLATEN: Let me just add, I agree that that is a long time, and it's my job to find ways to make it go as fast as possible. I want to get out there and get started, and I want to find ways to clean this up as fast as possible. That's what NASA is paying me for.

UNIDENTIFIED SPEAKER: It occurs to me that there's a lot of JPL employees sitting around.

I'm wondering, are you guys concerned for your own safety? The worst contamination is right under you.

I spoke with a 40-year retiree from JPL. Boy,

does she have some interesting things to say about the cancer rate there, regardless of what you say, sir.

You've gotten away so far. But there's a very high incidence of cancer at JPL itself. And the employees have been moved from building to building, and there have been all kinds of efforts made to, I guess, tone down the severity of the problems right on the site itself.

And I just wonder, what are you guys doing about that?

MS. FELLOWS: Someone who has a long history.

MR. SLATEN: Okay. I'm looking at how to answer that question.

You know, JPL people live -- that work there, I think the statistics are most JPL people live within a few miles of JPL, so they're also your neighbors as well. We live there. We care about what happens there. We care about what happens off-site. And the reason we're here tonight is because we need to be good neighbors. It's important that we're good neighbors. And so that's why we're doing this.

I'm sorry?

UNIDENTIFIED SPEAKER: What is NASA or JPL doing about the sick employees, the ones who claim that there's some correlation between their illness and the contaminant level under JPL?

MR. SLATEN: Okay. Did you hear the question?

MS. FELLOWS: I heard her say, what are you doing about your sick employees? And I'm just not familiar with the issue of it. But we can look at it and find out what the answer is.

UNIDENTIFIED SPEAKER: I've been a resident of Altadena for approximately 30 years. I am very young, actually. I'm only in my late 30s. And a lot of my friends, as well as myself, are very sick. We don't have cancer, but we have other major diseases, and a lot of my friends have died.

And the people that are just saying cancer, it's more than cancer. It is also other diseases. And I -- this is my sister.

UNIDENTIFIED SPEAKER: (Inaudible) diabetes, and multiple sclerosis --

UNIDENTIFIED SPEAKER: Multiple sclerosis, a lot of diseases, major diseases in early 30s, and they have deceased. And we have all lived within the same general area. I actually lived right off of Windsor on Kent Street and -- for years. And I was diagnosed at age 13 with ulcerative colitis. And my doctors can't understand how can a 13-year-old have that, as well as my brother.

Blows you away, doesn't it?

MS. MELNYK-VECCHIO: I'm not a medical doctor. I'm an

engineer. And I hear what you're saying. I'm also a resident of the City of Pasadena. I drink the City of Pasadena's water. I've lived in Pasadena for almost 20 years now.

Something I developed when I was 35 years old, perchlorate happens to affect your thyroid. I developed a thyroid problem when I was 35. I'm almost 55 years old now, and I've been on pills since that time. I take a pill every single morning.

Do I attribute it to the water supply in the City of Pasadena? It's hard to say. It might be my genes, you know. It's what my parents gave me. It could be my activity, the food I ate. It could be the air I breathe. It could be just anything that has occurred.

We all -- we're human beings. We all have medical problems. I'm not trying to belittle these problems, but I don't know if we can always necessarily attribute it to the water supply or to this specific site.

So I'm just telling you, from my personal experience, I've actually developed a problem that can be associated with perchlorate.

But do I say "City of Pasadena, you're responsible for that"? No. I can't say -- I cannot go to the City of Pasadena and say "You did this to me," because I can't. I can't possibly say that. Okay? There's just

so many factors.

So all I can say is that we, as a group, can take your medical concerns, we can bring a medical doctor in, we can bring the risk assessment folks in, we can bring the medical people in, and we can talk to those people that have concerns about your health, the higher incidences of certain diseases, and they can better answer your questions.

You're welcome.

UNIDENTIFIED SPEAKER: (Inaudible.)

MS. MELNYK-VECCHIO: I don't know -- okay. That is something that can be asked. Okay. And, you know, everything all costs money, and it all cost (inaudible).

So you can ask, you may get it. So we'll see what happens.

MS. FELLOWS: It's about 9:30, and we have to be out of here by 10:00, so can I get a sense of how many more questions there are?

Are you pointing, ma'am, with the papers or --

Tom, you've already had a shot, so let's see if we can get to the others first.

Okay. There's about four more we'll try to wrap up with, and then, after that, we'll break up, and maybe you can talk to some of the regulators and experts.

MS. KRUELLS: Hi. My name is Marietta Kruells, and I

live on the west side of Altadena and Mariposa, and I can see JPL from my front yard.

And I recall about ten years ago, there was quite an extensive health survey. I don't know if it was done through Superfund or what. But it was a big health survey that went to all residents.

Some of you people said you've been in the area a long time. You must have gotten a survey also. But maybe the people up there in front aren't aware of that survey, but I'm sure you can access it. And I don't know if it would be current information.

But the other thing that I recall that is missing from that survey, which this lady brought up, is animals. And I don't recall there were any questions about pets, which I think that's an obvious one.

I live next door to a stable that has about 60 or 70 horses, and the horses are dependent on that water. They don't go anywhere. All they drink is the local water. They don't go to work and drink water elsewhere. Rarely do they go anyplace else.

And so I would think that would be a really good group to include in any kind of medical survey. Call vets, local vets, see what kind of thyroid problems are showing up.

I know at the barn next door to me, they have a

very high incidence of something that's similar to Cushing's. Now, I don't know if that's because of the water or it's just a curiosity, but I think, since so many people here are interested in medical, a horse stable where the animals never leave and they're large animals that require a lot of water, I think that's an obvious one.

So I just thought I would throw that out there, but thank you for your time.

MS. FELLOWS: Thanks for the comment.

Let's see. Yeah. Kim.

UNIDENTIFIED SPEAKER: Just so happens that both my neighbors, they died from thyroid cancer. And shortly after they -- well, one passed away before we moved there, but the other one, she passed away after we moved next door to her.

And then I remember getting the survey in the mail asking if people were sick, but they were dead by then.

Okay. Getting back to the groundwater, I would like to know how deep the shafts were put down in order -- I don't think you guys went all the way down to the water table in order to dump the perchlorates.

Do you know how deep the shafts went?

MS. FELLOWS: You mean to monitor, to estimate --

UNIDENTIFIED SPEAKER: No. No. No. The seepage

pits.

MR. SLATEN: I've got -- the answer is those seepage pits were dug about 30 feet deep.

UNIDENTIFIED SPEAKER: So they went down there 30 feet, then.

Has anyone tested the soil to see if it's in the soil?

MR. SLATEN: Yes.

UNIDENTIFIED SPEAKER: And it is or isn't?

MR. SLATEN: There have been soils that have been cleaned up that were directly in the area.

UNIDENTIFIED SPEAKER: Then maybe people have been contaminated from the quarry that was down there. They were digging up, taking out rocks and stuff, digging ground, dust, plumes in the air.

Is that a possibility?

MR. SLATEN: I don't know where a quarry is.

UNIDENTIFIED SPEAKER: (Inaudible) it is gone down. But they stopped right -- right around the time they come out with the survey, they stopped digging (inaudible) earthquake.

MR. SLATEN: Well, the disposal was on JPL site, within the JPL boundary, and there is no rock quarry that I know of inside the JPL boundary, so it would be --

UNIDENTIFIED SPEAKER: It was next door, right there.

MR. SLATEN: Okay.

UNIDENTIFIED SPEAKER: (Inaudible.) In fact, the road that goes by JPL, the trucks used to use that. It is on the south side. The trucks would use -- the trucks would use that road in and out.

EPA, like -- I don't remember his name -- have they tested for the soil? Mark?

MR. SLATEN: Mark?

UNIDENTIFIED SPEAKER: Have they tested for the soil?

MR. SLATEN: Mark, the question had to do with right adjacent to JPL, and perhaps gravel was removed and had been tested for the soil, and he was asking you specifically.

UNIDENTIFIED SPEAKER: Yes. Do you know of any tests that were done to the soil? It was years ago.

MR. RIPPERDA: Yeah. I don't know the rock quarry specifically that you're talking about. But the contamination from JPL comes from the work that they do in their labs. And they had floor drains in all the labs, and so, as they washed their equipment, as they washed their floors, all of that gets plumbed, and all their sinks go into the floor drains, and those floor drains lead right to these seepage pits. And once it hits the seepage pit, the water just perchlorates, more or less, straight down to the water table.

So there's not really a way for the contamination from Jet Propulsion Labs to get out into the Arroyo where the quarry would have been.

UNIDENTIFIED SPEAKER: Except for accidents, though.

MR. RIPPERDA: Right.

UNIDENTIFIED SPEAKER: Does anyone know how many accidents there were, you know, from the inception of JPL, accidental spillage? We know that there were some there.

UNIDENTIFIED SPEAKER: (Inaudible) when they were building the house -- when we were having our home built, we did get some silt from the Arroyo.

I don't know (inaudible). I'm hoping it wasn't contaminated at the time, but we get truckloads of silt from there when they had it before, you know.

MS. FELLOWS: Okay. We've got time for about one more question so...

MR. BELL: Hi. My name is Adam Bell. I'm a 30-year resident of Altadena.

My question is to NASA, actually. Since you've established your relationship with the Lincoln Avenue Water Company, which is my water supplier, I just want to know what you guys are doing for Lincoln Avenue Water Company as far as preventive maintenance and things of that nature to -- because this is a 30-year process that's going to take place.

So eventually, as diluted as that plume is, it may have reached to Lincoln Avenue Water Company's water supply. And what I'm aware of, I believe that those wells that we use lowers the cost of buying water from another supplier. But once they close those wells, then that number -- we got to pay for that water, which would affect the consumer.

So are you guys doing some type of preventive maintenance or providing some funding for the Lincoln Avenue Water Company to do some testing or do some things of that nature?

MR. HAYWARD: That's a very good question.

Answer, Steve.

MR. SLATEN: All right. Well, as I've described, the reason we're taking action is to pull back those chemicals and keep them from going further, keep them from impacting any further wells. We also have an agreement with the water company that, if we do impact them, we will make it right.

MR. BELL: I know you say "if we do." What about more? That is the question (inaudible).

MR. SLATEN: Hang on just a second. I really can't hear without the mike.

MR. BELL: I know you say "f we do," but I'm saying before if we do. Let's just start doing some preventive

maintenance. That's the thing that I'm thinking should be done rather than wait until it happens.

MR. SLATEN: I believe that's exactly what we're doing. As soon as possible, we're going to be sucking back on those chemicals and keeping them from going any further.

In the meantime, we have an agreement with them. We're already working with them on this stuff, and we will make it right, whatever it takes.

MS. FELLOWS: Okay. We're going to wrap up here. Let me just go over the little action items I took in addition to the ones that we'll look through when we review the transcript.

We talked about having a medical representative in a coming meeting, and I wrote "soon."

Two months sound like a good time? Let's see. It's February, March -- sometime the end of March? It takes us a while to pull the experts together and get notices to you, so does that sound right, or should we do it at just our next quarterly meeting? What's the sense of people here?

UNIDENTIFIED SPEAKER: As soon as possible.

MS. FELLOWS: So two months. We'll go to the two months one instead of waiting for the quarter.

The Arroyo Seco master plan relationship with NASA's plans for cleanup, we'll look at that.

We'll see if there's any data on JPL employees and health effects there. And we can probably -- if there is any data, we can bring it to the same meeting.

Let's see. We did want to ask you -- we have evaluation forms outside. We really encourage you to fill them out. Tell us whether this format we used tonight was helpful, whether there's another kind of format.

If you have a group you want us to come to, write it down and tell us who it is, we'll get in touch with you. Give us any kind of feedback you can, prompted by what we ask on the evaluation comments.

And also, the comment cards that are back there, please take some home. If you think of some more questions you have, just mail them in to me, and we'll follow up with those as well and get back to you.

I think -- I learned a lot tonight. I really appreciate all of you coming out and sitting here in this cold room. I can tell part of that shows your deep concern, and we're going to try to be as responsive as we can. So thank you very much.

(At 9:38 P.M., the proceedings were adjourned.)

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STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

I, ANN BONNETTE-SMITH, C.S.R. No. 6108, do hereby certify:

That said Transcript of Proceedings was taken before me at the time and place therein set forth and was taken down by me in shorthand and thereafter was transcribed into typewriting under my direction and supervision, and I hereby certify the foregoing transcript is a full, true and correct transcript of my shorthand notes so taken.

I further certify that I am neither counsel for nor related to any party to said action, nor in any way interested in the outcome thereof.

IN WITNESS WHEREOF, I have hereunto subscribed my name this _____ day of _____, 2004.

_____

ANN BONNETTE-SMITH